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Public Utility Commission of Texas

Memorandum

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PUBLIC UTILITY COMMISSION
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TO: PUC Filing Clerk

FROM: Therese Harris, Infrastructure & Reliability Division

DATE: June 5, 2018

RE: Project No. 26310: PUC Report on Evaluation of State Energy Efficiency Programs
Pursuant to Health & Safety Code § 386.205 (Senate Bill 5, 77th Legislature)

Please file the attached updated PUC Report on Evaluation of State Energy Efficiency Programs in AIS with Project No. 26310. Thank you.

REPORT TO TCEQ CONCERNING EMISSION REDUCTIONS FROM UTILITY ENERGY EFFICIENCY PROGRAMS

INTRODUCTION

The Public Utility Commission (PUC) provides this report in accordance with Texas Health and Safety Code § 386.205, Evaluation of State Energy Efficiency Programs, and 16 Tex. Admin. Code (16 TAC) § 25.183, Reporting and Evaluation of Energy Efficiency Program. This report summarizes results of the calendar year 2017 energy efficiency programs implemented by electric utilities under the Public Utility Regulatory Act § 39.905.¹

The energy savings and estimates of the air emission reductions submitted in this report are based on projects implemented in 2017 and achieved through the PUC regulated energy efficiency program adopted pursuant to 1999 legislation (SB 7) and subsequent legislation in 2001 (SB 5), 2007 (HB 3693), and 2011 (SB 1125). The 1999 legislation introduced retail competition in the sale of electricity and directed the PUC to establish energy efficiency programs that would be carried out by electric utilities to meet a specific demand reduction goal. Although the 1999 legislated demand reduction goal was not explicitly adopted to reduce air emissions, the energy savings achieved through the energy efficiency program also provide reductions in air emissions in Texas, including reductions within non-attainment areas. The 2001 legislation required a quantification of the energy savings from energy efficiency projects and the corresponding emission reductions. The 2007 legislation raised the utilities' energy efficiency goals from at least 10 percent of growth in demand to at least 15 percent growth in demand by January 2009, and to at least 20 percent growth in demand by January 2010. The 2007 legislation provided for a cost recovery mechanism designed to expedite utilities' recovery of reasonable expenditures on energy efficiency as well as a performance bonus for exceeding the goal. The 2011 legislation increased the demand goal, beginning with the 2013 program year, to 30 percent growth in demand. Once a utility's goal is equivalent to at least four-tenths of one percent of the utility's summer weather-adjusted peak demand, the utility must achieve this goal in subsequent years. In addition, the legislature expanded the program to reduce summer and winter peak demand. The legislature also

¹ Public Utility Regulatory Act, Texas Utilities Code Annotated § 39.905 (West 2016) (PURA).

required the PUC to develop an evaluation, measurement, and verification (EM&V) process to verify utilities' savings and to provide more insight into the program design issues. All of the participating utilities were eligible for bonuses for exceeding their goals for calendar year 2017.

The electric utilities, which are responsible for implementing the energy efficiency program, reduced demand by 465.82 MW, exceeding the demand reduction goals by 241 percent, and saved 541,044.30 megawatt-hours of energy, exceeding the energy goals by 164 percent.

BACKGROUND

The utilities' energy efficiency programs are a broad series of measures designed to reduce electric demand and energy consumption. Reductions in energy consumption result in reduced electric production that contributes to lower emissions in non-attainment areas and affected counties. Areas are designated as non-attainment by the Environmental Protection Agency (EPA) when they do not meet the quality standards for particular pollutants.

In compliance with the Clean Air Act, the Texas Commission on Environmental Quality (TCEQ) has developed State Implementation Plans (SIPs) to address the Texas counties that do not meet EPA's national ambient air quality standards for ozone. Although the energy efficiency programs will result in the reduction of emissions of NO_x, sulfur-dioxide, and carbon-dioxide, the focus of this report is the NO_x emissions reductions.

To estimate NO_x emissions reductions resulting from the energy efficiency program, the PUC relies on Emissions & Generation Resource Integrated Database (eGRID), a national database of air emissions that is maintained by the EPA, to link energy savings to emissions reductions. The Energy Systems Laboratory at Texas A&M University (ESL) will utilize eGRID in combination with the utilities' reported savings to estimate the annual and peak ozone day NO_x emissions reductions. The energy efficiency programs are developed to achieve energy savings during the peak periods of electrical consumption, May through September and December through February; however, some of the measures also result in savings outside of the peak period. The peak energy consumption periods generally correspond to the ozone season. This report also reports on the utilities' efforts to meet the demand reduction mandate and the associated cost incurred to achieve the reported savings.

REGULATORY FRAMEWORK

To meet the statutory requirements of PURA § 39.905, Goal for Energy Efficiency, and Texas Health and Safety Code § 386.205, Evaluation of State Energy Efficiency Programs, the PUC initially adopted 16 TAC §§ 25.181, 25.183, and 25.184.

16 TAC § 25.181 governs the implementation of the energy efficiency program and requires, in part, that electric utilities acquire energy efficiency savings through the administration of standard offer programs, market transformation programs, pilot programs, and in some cases self-directed programs. When originally adopted in 2000, 16 TAC § 25.181 required the electric utilities to obtain savings equal to at least 10 percent of their growth in demand. Consistent with legislation enacted in 2007, the rule was amended in 2008, requiring savings equal to at least a 15 percent reduction of the electric utilities' growth in demand of residential and commercial customers for program year 2009. This goal increased to a 20 percent reduction for program years 2010 and 2011. Further amendments to 16 TAC § 25.181, adopted in 2010, increased the electric utilities' savings goal to at least 25 percent of growth in demand for 2012 and 30 percent for subsequent program years. The commission adopted additional amendments to 16 TAC § 25.181 in 2012 that maintained the 30 percent goal for 2013, but shifts the goal to four-tenths of one percent of summer weather-adjusted peak demand in subsequent years once the utility reaches that goal. Amendments adopted in 2012 also carry out the legislative mandate to develop an evaluation, measurement and verification (EM&V) process by outlining the roles and responsibilities of a statewide evaluator to be selected by the PUC.

16 TAC § 25.183 requires that the utilities report their program results to the PUC. 16 TAC § 25.184 contained various details for the operation of the program: allowable project templates, forms and deemed savings estimates. Section 25.184 was repealed in 2008 to permit these program documents to be more easily amended and updated.

The PUC staff and utility program managers meet with other stakeholders interested in the energy efficiency program in an Energy Efficiency Implementation Project (EEIP) to assist in implementing the energy efficiency goals and serve as a forum for discussion of program changes.

In addition, amendments adopted to 16 TAC § 25.181 in 2012 expand the role of the EEIP to discuss the development of programs and changes to the design of existing programs.

EGRID – AIR EMISSIONS DATABASE

The EPA's Office of Atmospheric Programs Global Programs Division developed the model used to estimate the air emissions reductions from the energy efficiency program, relying on the fact that the Texas electric grid (Electric Reliability Council of Texas or ERCOT) is a closed system. This means that for the most part, all electricity on the ERCOT grid is both generated and consumed in Texas. Outside of ERCOT, the electric utilities in Texas, El Paso Electric Company, Southwestern Public Service Company, Entergy Texas, Inc. and Southwestern Electric Power Company, import and export electricity across state boundaries. To calculate emissions reductions in ERCOT, emission factors from eGRID will be used and an assumption that production from a set of ERCOT power plants would be reduced when energy consumption is reduced as a consequence of energy efficiency activities.

This methodology relies on the EPA's eGRID database of measured power plant emission rates, historical relationships between the areas in which power is produced and the areas in which it is consumed, and the operating characteristics of the power plants in the region. It reflects, for example, assumptions that coal and nuclear power plants meet base load requirements for consumers and, therefore, do not change their operation as a consequence of reductions in energy consumption. In other words, the methodology assumes (based on historical experience of efficient plant dispatch) that gas-fired plants are the marginal units that respond to changes in energy consumption.

The emissions reductions are based on savings that the utilities reported for calendar year 2017. The methodology for quantifying the emissions reductions was developed through a collaborative process among the PUC, the EPA's Office of Atmospheric Climate Protection Partnership Division, TCEQ, and ESL. ESL will perform the actual calculations to estimate the emissions reductions utilizing information provided by the PUC and EPA's eGRID database.

DEMAND REDUCTION GOAL (MW)

The demand reduction goals are based on an average of the peak demand for the five years preceding the goal year. Thus, calendar year 2017 demand reduction goals were established in 2016 under Project Number 45675. The electric utilities reported their 2017 program results in Project Number 48146.

During 2017 the utilities cumulatively achieved 241 percent of the demand reduction goal. The electric utilities' combined goal for reduction in growth in demand for calendar year 2017 was 193.64 MW (155.89 MW for utilities in ERCOT), and the achieved demand reduction was 465.82 MW (407.96 MW for utilities in ERCOT).

Demand Reduction Goal (MW)	Achieved Reduction (MW)	Percentage of the Goal
193.64	465.82	241%

ENERGY SAVINGS ACHIEVED (MWH) AND PROGRAM EXPENDITURES

As a complement to the demand savings, which are measured in megawatts (MW), the energy efficiency program resulted in energy savings measured in megawatt hours (MWh). These quantified energy savings are necessary in order to calculate the estimated emission reductions achieved through the energy efficiency programs and are provided to the TCEQ for possible SIP credit. Cumulatively, the utilities achieved total energy savings of 541,044.30 MWh in addition to 465.82 MW of demand savings during calendar year 2017.

The utilities spent a total of \$122,171,134 for energy efficiency measures implemented during calendar year 2017. Incentives were paid to Energy Efficiency Service Providers (EESPs) following their installation of energy efficiency measures and provision of any required verification of results. Reimbursements to EESPs were based on installation of energy efficiency measures and calculation of the savings through a measurement and verification protocol or PUC-approved deemed savings values. Individual electric utility expenditures and demand and energy savings for calendar year 2017 are noted below.

2017 Verified Savings by Utility					
Utility	Verified Savings		Goals		Expenditures*
	MW	MWh	MW	MWh	
Entergy	21.20	50,574.88	15.50	27,156.00	\$7,074,568
SPS	7.75	16,870.64	5.49	9,627.00	\$3,675,490
SWEPCO	13.63	18,863.81	5.60	9,811.00	\$4,284,022
El Paso	15.29	23,311.79	11.16	19,552.00	\$4,260,430
Non-ERCOT	57.86	109,621.12	37.75	66,146.00	\$19,294,510
CenterPoint	188.42	183,438.84	60.42	105,855.84	\$31,420,852
AEP TCC	45.87	64,971.40	15.83	27,734.00	\$13,264,831
AEP TNC	6.79	12,038.18	4.26	7,464.00	\$2,996,343
TNMP	10.69	20.77	5.680	9.95	\$5,079,379
Oncor	155.23	170,124.16	69.40	121,589.00	\$49,577,549
Sharyland**	0.96	829.84	0.30	526.00	\$537,670
ERCOT	407.96	431,423.18	155.89	263,178.79	\$102,876,624
Total	465.82	541,044.30	193.64	329,324.79	\$122,171,134
* Expenditures include Evaluation, Measurement and Verification (EM&V) contractor expenses.					
** In late 2017 the PUC approved Oncor and Sharyland's request to exchange certain assets that resulted in all of Sharyland's retail delivery customers becoming Oncor's customers. For 2018, Oncor's Energy Efficiency Cost Recovery Factor will be applicable to all Oncor customers including former customers of Sharyland.					

EMISSIONS AVOIDANCE

Texas Health and Safety Code § 386.205 established the requirement for the PUC to provide an annual report to TCEQ that quantifies the reductions of emissions of air contaminants achieved from the programs implemented under PURA § 39.905. Thus, while this program was not explicitly adopted to reduce air emissions, energy savings will result in reduced air emissions.

ANNUAL AND PEAK DAY EMISSIONS REDUCTIONS

ESL and TCEQ will collaborate in using the savings provided in this report to estimate the emission reductions resulting from the energy efficiency program by county. ESL will estimate the annual and peak ozone day emissions avoided as a result of the energy savings realized from the utilities' energy efficiency projects. The ESL and TCEQ estimates were not available for this report; however, the estimates will be provided by the PUC when it receives the estimates from ESL and TCEQ. TCEQ will receive and review the data submitted by ESL, and TCEQ will then provide it to the PUC for an addendum to this report.